PESTFEST

JACKSON HOLE WILD

DEPARTMENT OF STATE · UNITED STATES OF AMERICA

Photo: How Mosquitoes Use Six Needles to Suck Your Blood

Photo: Malaria and the Silent Spring

The U.S. Department of State is proud to invite all U.S. embassies, consulates, and American Spaces to participate in the 2018 Pest Fest!

Through a partnership with the Jackson Hole Wildlife Film Festival (JHWFF), the Bureau of Oceans and International Environmental and Scientific Affairs (OES) is providing overseas posts the opportunity to screen films that explore the threats vector-borne disease pose to people everywhere, as well as ways to address this growing problem.

Why should my post screen these films?
In today's interconnected world, an infectious disease threat anywhere can be a threat everywhere. As the attached **one-pager on U.S. action against vector-borne disease** makes clear, the United States is a global leader in the effort to protect the world from infectious disease.

The first step to controlling the outbreak of vector-borne disease is to inform the public of how it can protect itself and reduce the spread of disease. Use these films to educate and inspire your audiences to action!

Screen these films for students at your American Spaces!
Pest Fest films are both visually compelling and accessible to English learners, making them perfect for programming at American Spaces. Not an expert on infectious disease? No problem! Use the accompanying **movie programming kits** to facilitate discussion. Each kit includes a synopsis of the film, background info, and comprehension and discussion questions to help facilitate an engaging screening.
The films range from a feature-length to a few minutes

Good for professional audiences, too!
Use these films to highlight the urgency of preventing and controlling vector-borne disease. Host a screening for local public health officials or medical students along with a panel discussion featuring medical professionals at your mission or in your city.

Good dates for screenings:
- World Health Day (Apr 7)
- World Malaria Day (Apr 25)
- World Pest Day (Jun 6)
- ASEAN Dengue Day (Jun 15)
- World Mosquito Day (Aug 20)
- World Rabies Day (Sep 28)

Mosquito
62 minutes

Unseen Enemy
97 minutes

How Mosquitoes Use Six Needles to Suck Your Blood
3 minutes

Spillover:
Zika, Ebola and Beyond
56 minutes

How do I screen the films?
First, select which films are most appropriate for your audience and mission. To preview the films, access the private screening room at the link below – when prompted, **use password 20JHWFF17** to access the films. This is a private screening room, and **should only be used for previewing the films**. Do not share this link with anyone else. Note that by streaming the content, you are agreeing to the terms and conditions outlined in the agreement. **https://www.jhfestival.org/vector-borne-disease-screening-room.html**

Once you have selected the film(s) you would like to show, email **Melanie Judd at melanie@jhfestival.org:**

1. **Your film selection**
2. **Screening date**
3. **Location**

Melanie will then share **downloadable files** of the films with you via Dropbox. **Do not stream the films for audiences** – downloading ensures the quality of the screening and is necessary for tracking and screening rights protection. Files should be downloaded and tested prior to your screening to ensure playback. Melanie recommends also downloading VLC playlist (link: https://www.videolan.org/vlc/releases/1.1.5.html), or a similar media player, to queue up your film selection - including the two trailers that must be shown at any screening, as per the screening agreement.
These films may be screened through December 31, 2018.

Melanie will also share a Google Drive folder containing **graphics for social media posts, logos, trailers** and other helpful information with you.

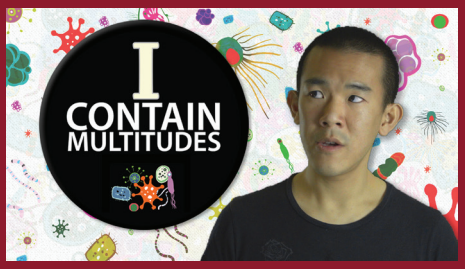
Please email OES's Yoon Nam (NamYS@state.gov) or JHWFF's Melanie Judd (melanie@jhfestival.org) if you have any questions.

When posting about the events on social media, please tag: **@StateDeptOES @jacksonholewild**

Check out the movie programming kits, which make it easy for staff and American Space coordinators to facilitate a dialogue around the issues highlighted in each film. Each kit includes:

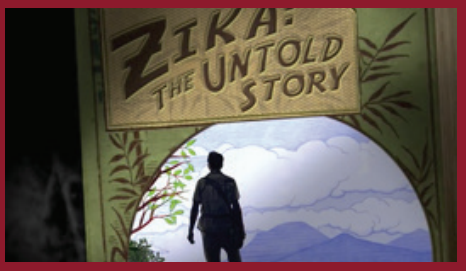
- Synopsis of the film
- Background info on the issues
- List of countries featured in the film
- Comprehension and discussion questions

Thanks for your support of the Pest Fest film showcase!



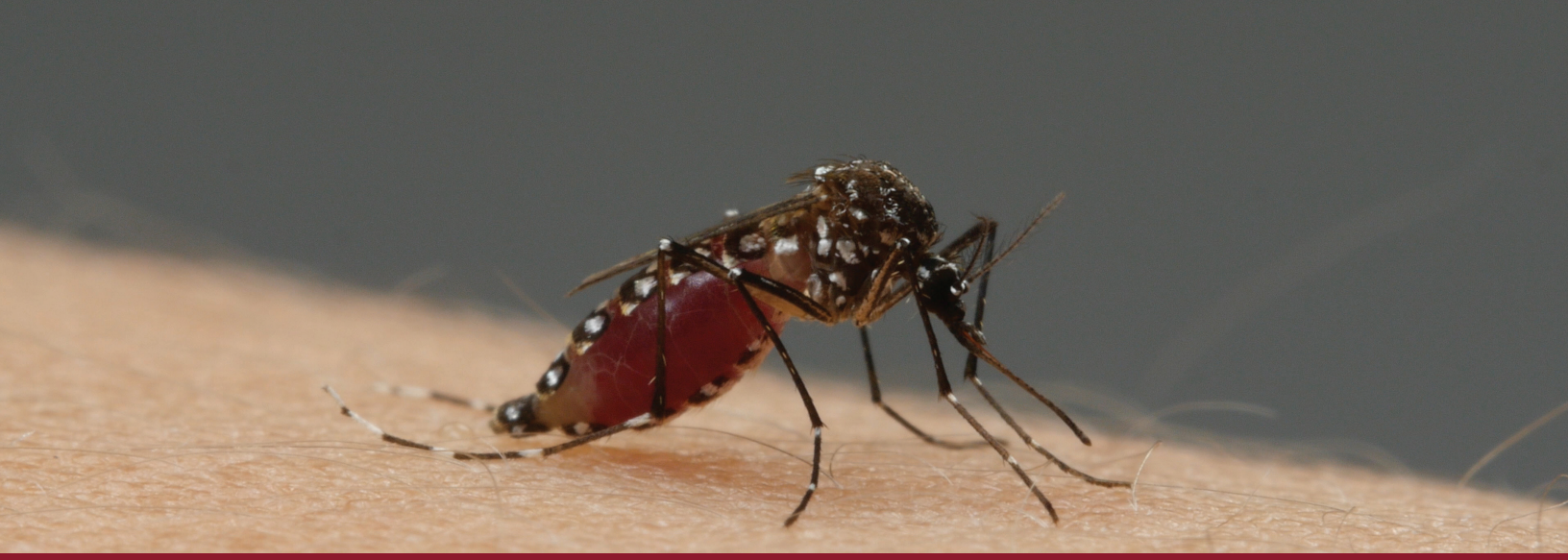
I Contain Multitudes
9 minutes

Malaria and the Silent Spring
12 minutes



Zika: The Untold Story
12 minutes

The Return of the Black Death
22 minutes



How Mosquitoes Use Six Needles to Suck Your Blood

Produced by KQED, PBS Digital Studios
Year of Release: 2016
Length: 3 minutes
English Level: Easy
Themes: Mosquitoes; Public health

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Synopsis:

Seen up close, the anatomy of a mosquito bite is terrifying. The most dangerous animal in the world uses six needle-like mouth parts to saw into our skin, tap a blood vessel and sometimes leave a dangerous parting gift. Deep Look is a science video series that explores big science by going very, very small, from KQED and PBS Digital Studios. We use macro photography and microscopy in glorious 4K resolution, to see science up close... really, really close.

Background Information

Vector-Borne Disease (From the World Health Organization)

Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Many of these vectors are bloodsucking insects, such as mosquitos, which ingest disease-producing microorganisms during a blood meal from an infected host--human or animal--and later inject it into a new host during their subsequent blood meal.

- Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 deaths annually.

- More than 3.9 billion people in over 128 countries are at risk of contracting dengue, with 96 million cases estimated per year.
- Malaria causes more than 400,000 deaths every year globally, most of them children under 5 years of age.
- Other diseases such as Chagas disease, leishmaniosis, and schistosomiasis affect hundreds of millions of people worldwide.

What are some ways to control the problem of mosquito-borne disease?

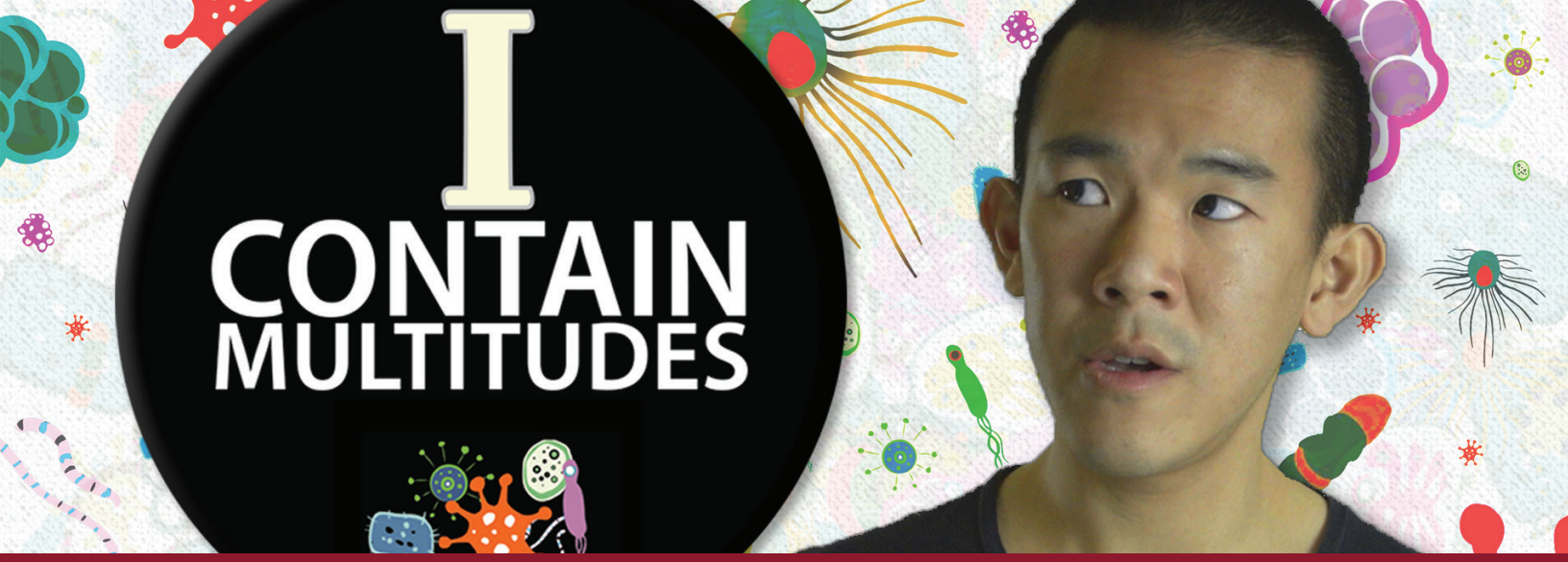
- Disposing of solid waste properly and removing man-made habitats
- Covering, emptying and cleaning of domestic water storage containers on a weekly basis
- Using of personal household protection such as window screens, long-sleeved clothes, insecticide treated materials, coils and vaporizers
- Improving community participation and mobilization for sustained vector control

Comprehension Questions

- Why do only female mosquitoes bite humans?
    - Female mosquitos use the protein from the blood she takes to develop her eggs.
- How does eliminating pools of standing water reduce mosquito populations?
    - Water is necessary for mosquito eggs and larvae to develop and hatch.
- How does a mosquito transmit a virus to a human?
    - It picks up the virus from an infected host and transmits it through saliva (spit) when biting its next host for a meal.
- Why does the mosquito spit chemicals into us when it bites?
    - The chemicals make the blood flow more easily.

Discussion Questions

- Have you ever met someone who came down with a mosquito-borne disease? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of mosquito-borne diseases?



I Contain Multitudes:

Mosquitoes Might SAVE Lives, Thanks to Bacteria

Produced by HHMI Tangled Bank Studios, PBS Digital Studios
Year of Release: 2017
Length: 9 minutes
English Level: Easy
Themes: Mosquitoes; Public health

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Synopsis:

Dengue fever is a deadly mosquito-borne viral disease estimated to infect over 400 million people every year. Ed Yong talks with Scott O'Neill, Professor at Monash University and leader of the Eliminate Dengue project, about his surprising solution: infectthe mosquito with bacteria called Wolbachia that is able to spread through the mosquito population and stop the transmission of dengue. Pilot studies with the Wolbachia-infected mosquitoes suggest it has great power to reduce the spread of dengue.

Background Information

Vector-Borne Disease (From the World Health Organization)
Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Many of these vectors are bloodsucking insects, such as mosquitos, which ingest disease-producing microorganisms during a blood meal from an infected host--human or animal--and later inject it into a new host during their subsequent blood meal.

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- Malaria causes more than 400,000 deaths every year globally, most of them children under 5 years of age.
- Other diseases such as Chagas disease, leishmaniosis, and schistosomiasis affect hundreds of millions of people worldwide.

How can the problem of mosquito-borne disease be controlled?

- disposing of solid waste properly and removing man-made habitats
- covering, emptying and cleaning of domestic water storage containers on a weekly basis
- using of personal household protection such as window screens, long-sleeved clothes, insecticide treated materials, coils and vaporizers
- improving community participation and mobilization for sustained vector control

Comprehension Questions

- How many millions of people are infected by dengue-carrying mosquitoes every year around the globe?
    - It infects 400 million people every year.
- Why did the scientists infect mosquitoes with the Wolbachia bacteria?
    - The bacteria prevented the dengue virus from growing.

Discussion Questions

- Have you ever met someone who came down with a mosquito-borne disease? What disease did they have? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of mosquito-borne diseases?
- What might be some challenges of implementing this solution?

Dengue: The Hunt for a Vaccine

Produced by Rockhopper Media
Year of Release: 2016
Length: 45 minutes
English Level: Medium
Themes: Pandemic; Public health

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Synopsis:

Dengue fever is classic 21st century disease, spreading through travel, urbanization and environmental changes. Spread by the same mosquito that carries the Zika virus, half the world's population is now at risk. Around 500,000 people are hospitalized each year and thousands, mostly children, die. Worse still, there is no treatment for dengue fever.
The documentary filmed in the Philippines, USA, Mexico and Brazil charts the seventy year search for an effective vaccine against the complex disease. The very first vaccine is now becoming available, the first step towards curbing the increasing threat.

Countries Featured

- USA
- Philippines
- Mexico
- Brazil

Key Vocabulary

- **Vaccine** - a preparation of killed microorganisms, living attenuated organisms, or living fully virulent organisms that is administered to produce or artificially increase immunity to a particular disease.
- **Dengue virus** - an acute infectious disease caused by a virus, transmitted by A edes mosquitoes, and characterized by headache, severe joint pain, and a rash.

Background Information

Vector-Borne Disease (From the World Health Organization)

Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Many of these vectors are bloodsucking insects, such as mosquitos, which ingest disease-producing microorganisms during a blood meal from an infected host—human or animal—and later inject it into a new host during their subsequent blood meal.

- Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 deaths annually.
- More than 3.9 billion people in over 128 countries are at risk of contracting dengue, with 96 million cases estimated per year.
- Malaria causes more than 400,000 deaths every year globally, most of them children under 5 years of age.
- Other diseases such as Chagas disease, leishmaniosis, and schistosomiasis affect hundreds of millions of people worldwide.

How can the dengue problem be controlled?

Vector control has been the key strategy to control or prevent the transmission of dengue virus. Strategies include:

- Disposing of solid waste properly and removing man-made habitats
- Covering, emptying and cleaning of domestic water storage containers on a weekly basis
- Using of personal household protection such as window screens, long-sleeved clothes, insecticide treated materials, coils and vaporizers
- Improving community participation and mobilization for sustained vector control

Comprehension Questions

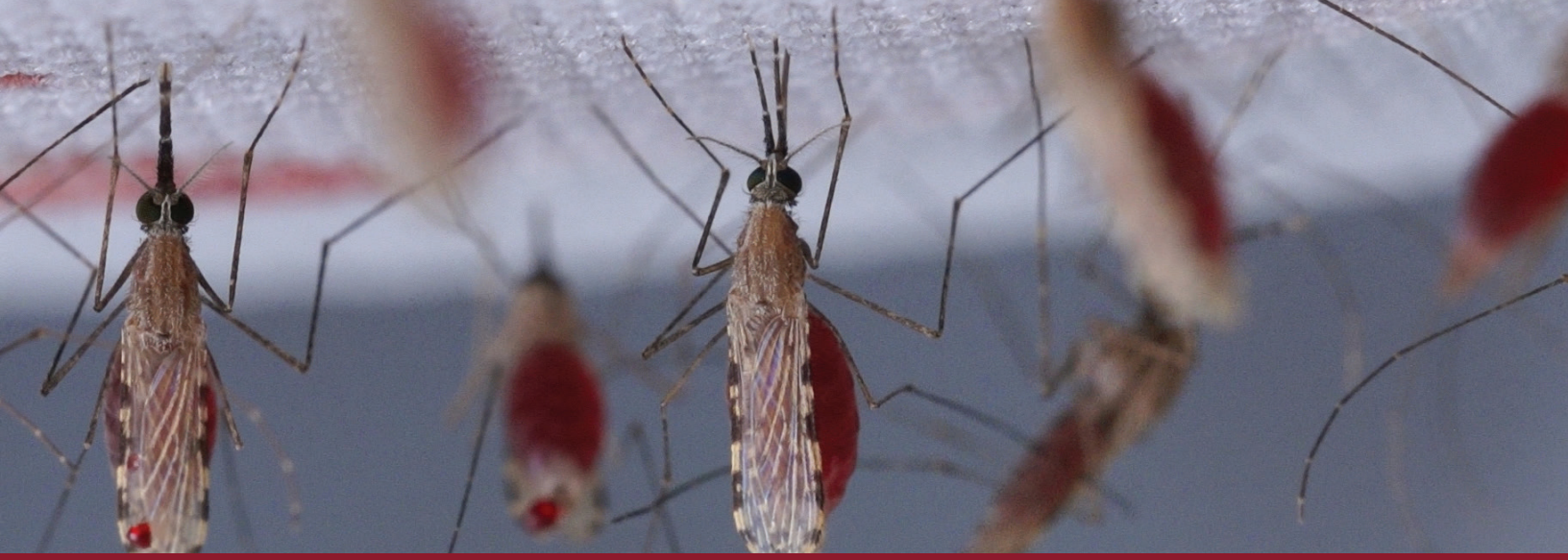
- What are some of the symptoms of dengue?
    - Fever, headache, pain, dizziness, weakness, vomiting, rash
- Why is dengue spreading so quickly?
- How many people are infected with dengue each year?
    - Roughly 400 million
- What diseases have been eradicated or greatly reduced by vaccines?
    - Smallpox, polio, measles
- What makes developing a vaccine for dengue so difficult?
    - Dengue refers to four different viruses

Discussion Questions

- Have you ever met someone who came down with a mosquito-borne disease? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of vector-borne diseases?
- What is the U.S. doing to fight dengue around the world?
- What is the international community's responsibility in fighting infectious diseases around the globe? What responsibility do richer countries have to assist poorer countries?

For more information visit:

- U.S. Centers for Disease Control: https://www.cdc.gov/dengue/index.html



Malaria and the Silent Spring

Produced by Retro Report, New York Times
Year of Release: 2016
Length: 12 minutes
English Level: Medium
Themes: Mosquitoes; Public health

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Producer Synopsis:
Rachel Carson is often credited with helping give rise to the environmental movement with the publication of Silent Spring – her treatise on the danger of pesticides. Regulations were passed that virtually banned the use of DDT in the U.S and most other countries followed suit. But Carson's critics point out that DDT was more than an effective agricultural pesticide -- it was a defense against a host of insect-borne diseases, such as malaria. These critics are right that malaria remains a devastating burden, but they err in their understanding of why, as Retro Report's trip to Burkina Faso shows.

Background Information

Malaria (from the US Centers for Disease Control)
Malaria is a mosquito-borne disease caused by a parasite. People with malaria often experience fever, chills, and flu-like illness. Left untreated, they may develop severe complications and die. In 2016 an estimated 216 million cases of malaria occurred worldwide and 445,000 people died, mostly children under 5-years old in Africa. About 1,700 cases of malaria are diagnosed in the United States each year. The vast majority of cases are in travelers and immigrants returning from countries where malaria transmission occurs, many from sub-Saharan Africa and South Asia.

Vector-Borne Disease (From the World Health Organization)
Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Many of these vectors are bloodsucking insects, such as mosquitos, which ingest disease-producing microorganisms during a blood meal from an infected host--human or animal--and later inject it into a new host during their subsequent blood meal.

- Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 deaths annually.
- More than 3.9 billion people in over 128 countries are at risk of contracting dengue, with 96 million cases estimated per year.
- Malaria causes more than 400,000 deaths every year globally, most of them children under 5 years of age.
- Other diseases such as Chagas disease, leishmaniosis, and schistosomiasis affect hundreds of millions of people worldwide.

How can the problem of mosquito-borne disease be controlled?

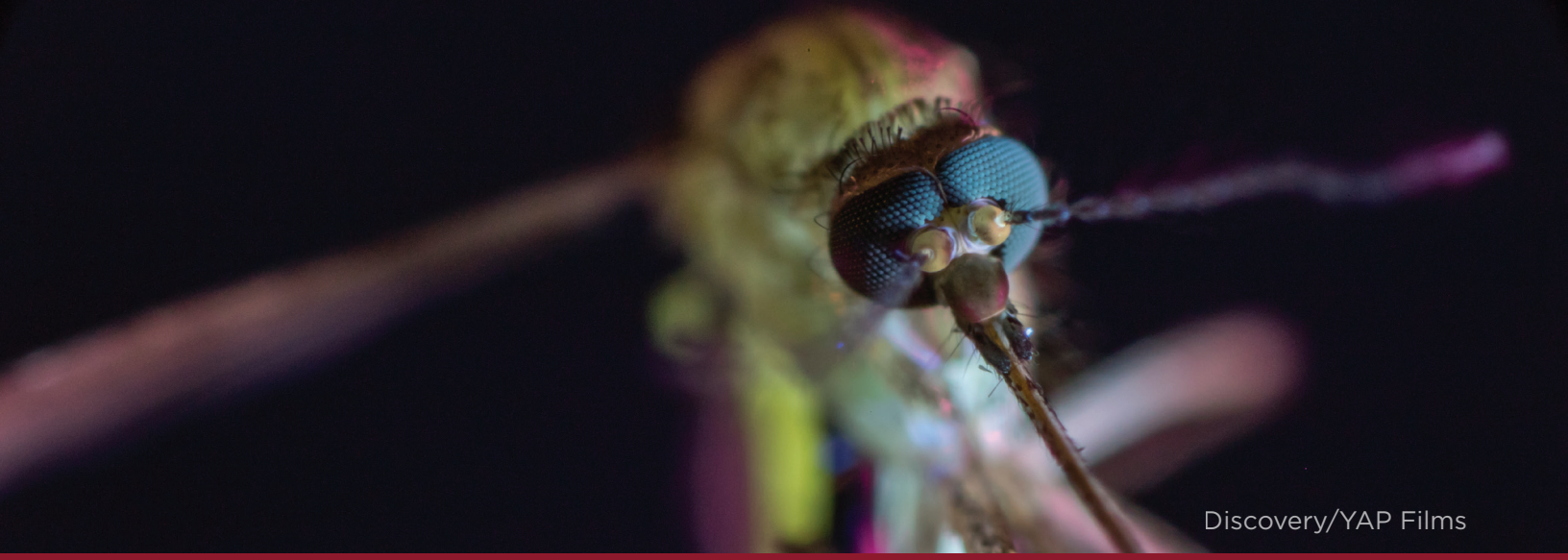
- Disposing of solid waste properly and removing man-made habitats
- Covering, emptying and cleaning of domestic water storage containers on a weekly basis
- Using of personal household protection such as window screens, long-sleeved clothes, insecticide treated materials, coils and vaporizers
- Improving community participation and mobilization for sustained vector control

Comprehension Questions

- Why do some critics blame Rachel Carlson for malaria deaths?
    - Her activism against the pesticide DDT led to bans on its usage in several countries.
- For what purpose was the chemical DDT developed?
    - To kill malaria-carrying mosquitoes during World War II.
- What negative effect did DDT have on the environment?
    - DDT poisoned water supplies and harmed human health.
- Why didn't continued DDT use in Burkina Faso prevent the spread of malaria?
    - The mosquitoes developed resistance to DDT.

Discussion Questions

- Have you ever met someone who came down with a malaria, dengue, or another mosquito-borne disease? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of mosquito-borne diseases?
- Is it fair to blame Rachel Carlson for malaria deaths today?



Discovery/YAP Films

Mosquito

Produced by Yap Films for Discovery Channel
Year of Release: 2017
Narrator: Jeremy Renner
Length: 62 minutes
English Level: Medium
Themes: Pandemic; Public health

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Producer Synopsis:

Mosquito is a timely in-depth look at this dangerous creature, how it is changing in unpredictable and unprecedented ways, and highlights how without an international coordinated effort, the world and its citizens are at risk for an historic pandemic. Shot on four continents, MOSQUITO features insights from world and health leaders including Bill Gates, and former CDC Director Tom Frieden, as well as the intimate stories of the men, women, and children who are living in fear that the next bite could be a deadly one.

Countries Featured

- USA
- Brazil
- Kenya
- Passing references to European countries (Netherlands, Portugal, Italy, Croatia, etc.)

Background Information

Vector-Borne Disease (From the World Health Organization)

Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Many of these vectors are bloodsucking insects, such as mosquitos, which ingest disease-producing microorganisms during a blood meal from an infected host--human or animal--and later inject it into a new host during their subsequent blood meal.

- Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 deaths annually.
- More than 3.9 billion people in over 128 countries are at risk of contracting dengue, with 96 million cases estimated per year.
- Malaria causes more than 400,000 deaths every year globally, most of them children under 5 years of age.
- Other diseases such as Chagas disease, leishmaniosis, and schistosomiasis affect hundreds of millions of people worldwide.

What are some ways to control the problem of mosquito-borne disease?

- Disposing of solid waste properly and removing man-made habitats
- Covering, emptying and cleaning of domestic water storage containers on a weekly basis
- Using of personal household protection such as window screens, long-sleeved clothes, insecticide treated materials, coils and vaporizers
- Improving community participation and mobilization for sustained vector control

Key Vocabulary

- **epidemic** - affecting or tending to affect a disproportionately large number of individuals within a population, community, or region at the same time
- **pandemic** - occurring over a wide geographic area and affecting an exceptionally high proportion of the population
- endemic - belonging to or native to a particular people or country
- **Zika virus** - a virus typically transmitted by mosquitoes that causes a usually mild illness marked chiefly by fever, joint pain, rash, and conjunctivitis and that has been associated with an increased incidence of microcephaly in infants born to pregnant women infected with the virus
- **microcephaly** - condition of abnormal smallness of the circumference of the head that is present at birth or develops within the first few years of life and is often associated with developmental delays, impaired cognitive development, poor coordination and balance, deficits in hearing and vision, and seizures
- **pandemic**
- **epidemic**
- **vector** - an organism, intermediate parasite, or animal that carries and transmits an infectious bacteria, virus, or other microorganism that can cause disease into another living organism

Documentary Goals

This documentary aims to educate its viewers on the causes and wide-reaching impacts of mosquito-borne diseases. It provides historical context to illustrate how quickly the problem is worsening and explores the many ways that medical professionals, NGOs, and governments are seeking to control the spread of mosquito-borne diseases.

Comprehension Questions

- How does a mosquito transmit a virus to a human?
- It picks up the virus from an infected host and transmits through its saliva (spit).
- Why are viruses spreading around the world faster than in past centuries?
- There are now countless intercontinental flights that spread diseases very quickly around the world.
- How is climate change affecting the spread of mosquito-borne diseases?
- Areas that were once too cold for mosquitos are now within their ecological range. Also, the increased warmth everywhere speeds up the reproduction cycle of mosquitos. (Some areas may become too hot for mosquitoes in certain seasons; this would trigger a different public health policy response).
- How has urbanization affected the spread of mosquito-borne diseases?
- The concentration of people and abundance of water-collecting trash, which are ideal breeding grounds for certain species of mosquitoes, leads to faster spread of diseases such as Zika and Dengue.

Discussion Questions

In Areas with High Incidence of Mosquito-borne Disease:

- What has been your community's experience with mosquito-borne epidemics?
- How would you describe your city/province/state/national government's responsibility to fight mosquito-borne epidemics? What steps have they already taken?
- What can international partners do to help the fight?
- If you were an official in charge of public health, how would you fight the spread of mosquito-borne disease?
    - How would you balance concerns about public health with concerns about damaging the environment (e.g., through the use of pesticides)?
- What actions can you take to reduce your/your family/your community's risk of mosquito-borne diseases?

In Areas with Low Incidence of Mosquito-borne Disease:

- Have you ever met someone who came down with a mosquito-borne disease? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of mosquito-borne diseases?
- What is a government's responsibility in fighting mosquito-borne epidemics? What is the community's responsibility?
- What is the international community's responsibility?
- How can countries work together to fight mosquito-borne diseases? Can you think of any positive examples?
- If you were an official in charge of public health, how would you fight the spread of mosquito-borne disease?
    - How would you balance concerns about public health with concerns about damaging the environment (e.g., through the use of pesticides)?

Spillover - Zika, Ebola & Beyond

A Tangled Bank Studios, LLC production in association with Barrat Media, LLC for PBS
Year of Release: 2016
Director: James Barrat
Length: 56 minutes
English Level: Medium
Themes: Pandemic; Public Health

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Synopsis:

Investigate the rise of spillover viruses like Zika, Ebola and Nipah that can make the leap from animals to humans. Find out how human behaviors spread diseases and what science can do to anticipate and prevent epidemics around the world.

Countries Featured

- USA
- Brazil
- Democratic Republic of Congo
- Sierra Leone
- Liberia
- Nigeria
- Bangladesh

Key Vocabulary

- **Zika virus** - a virus typically transmitted by mosquitoes that causes a usually mild illness marked chiefly by fever, joint pain, rash, and conjunctivitis and that has been associated with an increased incidence of microcephaly in infants born to pregnant women infected with the virus
- **Nipah virus** - a virus that has caused epidemics of respiratory disease in pigs and an often fatal encephalitis in humans in Malaysia, Singapore, and Bangladesh
- **Ebola virus** - any of several filoviruses of African origin that cause an often fatal hemorrhagic fever
- **epidemic** - affecting or tending to affect a disproportionately large number of individuals within a population, community, or region at the same time
- **pathogen** - a specific causative agent (such as a bacterium or virus) of disease
- **microcephaly** - condition of abnormal smallness of the circumference of the head that is present at birth or develops within the first few years of life and is often associated with developmental delays, impaired cognitive development, poor coordination and balance, deficits in hearing and vision, and seizures
- **vector** - an organism, intermediate parasite, or animal that carries and transmits an infectious bacteria, virus, or other microorganism that can cause disease into another living organism
- **zoonotic disease** - an infection or disease that is transmissible from animals to humans under natural conditions

Documentary Goals

This documentary aims to educate its viewers on the causes and wide-reaching impacts of zoonotic or "spillover" diseases. It tells the story of Zika, Ebola, and other diseases to illustrate the dangers and ways to address the spread of zoonotic diseases.

Background Information

Zoonotic Disease

Some animals can carry harmful germs that can be shared with people and cause illness – these are known as zoonotic diseases or zoonosis. Zoonotic diseases are caused by harmful germs like viruses, bacterial, parasites, and fungi. These germs can cause many different types of illnesses in people and animals ranging from mild to serious illness and even death. Some animals can appear healthy even when they are carrying germs that can make people sick.

Because of the close connection between people and animals, it's important to be aware of the common ways people can get infected with germs that can cause zoonotic diseases. These can include:

- Direct contact: Coming into contact with the saliva, blood, urine, mucous, feces, or other body fluids of an infected animal. Examples include petting or touching animals, and bites or scratches.
- Indirect contact: Coming into contact with areas where animals live and roam, or objects or surfaces that have been contaminated with germs. Examples include aquarium tank water, pet habitats, chicken coops, plants, and soil, as well as pet food and water dishes.

- Vector-borne: Being bitten by a tick, or an insect like a mosquito or a flea.
- Foodborne: Each year, 1 in 6 Americans gets sick from eating contaminated food. Eating or drinking something unsafe (such as unpasteurized milk, undercooked meat or eggs, or raw fruits and vegetables that are contaminated with feces from an infected animal).

What are some ways to control the problem of mosquito-borne disease?

- disposing of solid waste properly and removing man-made habitats
- covering, emptying and cleaning of domestic water storage containers on a weekly basis
- using of personal household protection such as window screens, long-sleeved clothes, insecticide treated materials, coils and vaporizers
- improving community participation and mobilization for sustained vector control

Comprehension Questions

- Where did the Zika virus originate?
    - Zika was first discovered in Africa.
- Ebola outbreaks have occurred for decades in Central Africa. Why did it become a widespread crisis in West Africa in 2013-2015?
    - Central African towns were mostly isolated, limiting the spread. West African cities are better connected, allowing it to spread more quickly.
- From what animal did Patient Zero contract Ebola virus in West Africa?
    - A bat.
- What is the main reason for increasing spillover diseases?
    - There is an increase in human-animal contact as human populations grow and spread into new areas.
- What reasons does the researcher give for not simply eliminating the wildlife that spread these diseases?
    - Wildlife are essential for balancing ecosystems – i.e. bats are needed to control insect populations and pollinate plants.

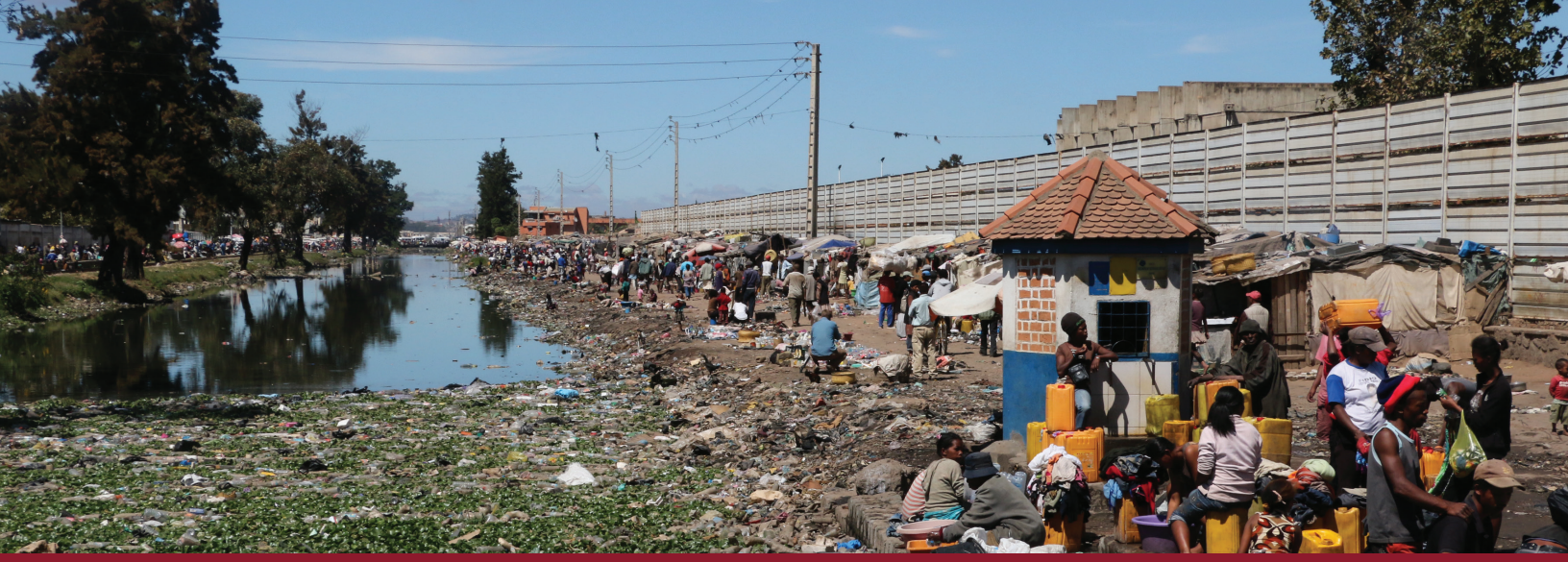
Discussion Questions

In Areas with High Incidence of Spillover Disease:

- What has been your community's experience with mosquito-borne or zoonotic diseases?
- How would you describe your city/province/state/national government's responsibility to fight such diseases? What steps have they already taken?
- What can international partners do to help the fight?
- If you were an official in charge of public health, how would you fight the spread of "spillover" diseases?
- What actions can you take to reduce your/your family/your community's risk of zoonotic or mosquito-borne diseases?

In Areas with Low Incidence of Spillover Disease:

- Have you ever met someone who came down with a mosquito-borne or zoonotic disease? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of "spillover" diseases?
- What is the international community's responsibility in fighting zoonotic diseases?
- Many experts think it is inevitable that new epidemics will emerge. What should the world do to prepare?
- If you were an official in charge of public health, how would you fight the spread of mosquito-borne or zoonotic disease?



The Return of the Black Death

Produced by Vice
Year of Release: 2014
Length: 22 minutes
English Level: Medium
Themes: vector-borne disease; Public health
Warning: Language ("f*", "s***"); scene of rat being killed and dissected**

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Synopsis:
The black plague has broke out in Madagascar. In late 2013, a deadly outbreak of the plague hit small villages around the country killing dozens of people. Rumored to have taken root in overcrowded prisons, the disease has flourished amid Madagascar's increasing poverty and poor waste management. Antibiotics to treat the disease have been developed and are available in most countries, but Madagascar's rudimentary healthcare system has left a number of people stranded without care.

Background Information

Plague (from the US Centers for Disease Control)
Plague is a disease that affects humans and other mammals. It is caused by the bacterium, Yersinia pestis. Humans usually get plague after being bitten by a rodent flea that is carrying the plague bacterium or by handling an animal infected with plague. Plague is infamous for killing millions of people in Europe during the Middle Ages. Today, modern antibiotics are effective in treating plague. Without prompt treatment, the disease can cause serious illness or death. Presently, human plague infections continue to occur in the western United States, but significantly more cases occur in parts of Africa and Asia.

Vector-Borne Disease (From the World Health Organization)
Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Many of these vectors are bloodsucking insects, such as mosquitos, which ingest disease-producing microorganisms during a blood meal from an infected host--human or animal--and later inject it into a new host during their subsequent blood meal.

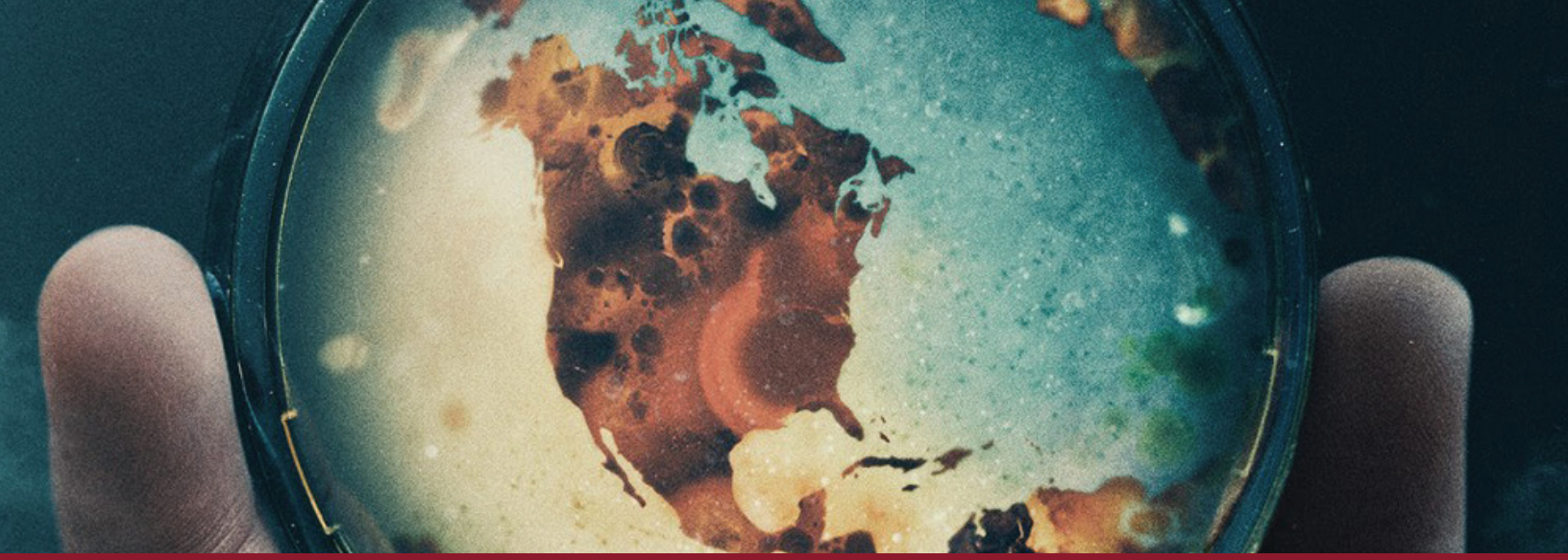
- Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 deaths annually.
- More than 3.9 billion people in over 128 countries are at risk of contracting dengue, with 96 million cases estimated per year.
- Malaria causes more than 400,000 deaths every year globally, most of them children under 5 years of age.
- Other diseases such as Chagas disease, leishmaniosis, and schistosomiasis affect hundreds of millions of people worldwide.

Comprehension Questions

- What are the main vectors of the plague?
    - The plague is generally spread by flea bites or handling an infected animal, such as a rat. (The pneumonitic form of plague is generally spread between people through the air via infectious droplets.)
- How does logging affect the spread of plague?
    - Rats escaping logging moved closer to humans.
- How does poor sanitation and dirty water endanger Antananarivo residents?
    - The poor sanitation can attract rats, which may carry plague.

Discussion Questions

- Have you ever met someone who came down with a vector-borne disease? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of vector-borne diseases?
- What is the international community's responsibility in fighting infectious diseases around the globe? What responsibility do richer countries have to assist poorer countries like Madagascar?



Unseen Enemy

Produced by Sierra Tango Productions, Vulcan Productions, ARTE, WDR
Year of Release: 2017
Director: Janet Tobias
Length: 97 minutes
English Level: Medium
Themes: Pandemic; Public Health
Warning: Scenes of ill and dead outbreak patients

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Synopsis:
Population growth, mass urbanization, deforestation, climate change and increased travel have dramatically increased the risk that familiar zoonotic diseases will spread and mutate, and new ones will emerge. *Unseen Enemy* examines this increased threat of pandemics in the 21st century, looking at the recent epidemics of Ebola, Influenza, and Zika. It not only looks at the danger we face but also at the important roles we can all play in the fight against pandemics. In the 21st century, we are all connected. And that connection is either incredibly dangerous or a powerful force for good. It is our choice which of those becomes true.

Countries Featured

- USA
- Brazil
- Cambodia
- China
- Democratic Republic of Congo
- Germany
- United Kingdom
- Liberia
- India
- Sierra Leone
- Singapore
- Switzerland
- Thailand

Key Vocabulary

- **epidemic** - affecting or tending to affect a disproportionately large number of individuals within a population, community, or region at the same time
- **pandemic** - occurring over a wide geographic area and affecting an exceptionally high proportion of the population
- **endemic** - belonging to or native to a particular people or country
- zoonotic disease - an infection or disease that is transmissible from animals to humans under natural conditions
- **Zika virus** - a virus typically transmitted by mosquitoes that causes a usually mild illness marked chiefly by fever, joint pain, rash, and conjunctivitis and that has been associated with an increased incidence of microcephaly in infants born to pregnant women infected with the virus
- **Ebola virus** - any of several filoviruses of African origin that cause an often fatal hemorrhagic fever
- **microcephaly** - condition of abnormal smallness of the circumference of the head that is present at birth or develops within the first few years of life and is often associated with developmental delays, impaired cognitive development, poor coordination and balance, deficits in hearing and vision, and seizures
- **vector** - an organism, intermediate parasite, or animal that carries and transmits an infectious bacteria, virus, or other microorganism that can cause disease into another living organism

Background Information

Infectious Disease

Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites, or fungi; the diseases can be spread, directly or indirectly, from one person to another. Zoonotic diseases are infectious diseases of animals that can cause disease when transmitted to humans. Zoonotic diseases are caused by harmful germs like viruses, bacterial, parasites, and fungi. These germs can cause many different types of illnesses in people and animals ranging from mild to serious illness and even death. Some animals can appear healthy even when they are carrying germs that can make people sick.

Because of the close connection between people and animals, it's important to be aware of the common ways people can get infected with germs that can cause zoonotic diseases. These can include:

- Direct contact: Coming into contact with the saliva, blood, urine, mucous, feces, or other body fluids of an infected animal. Examples include: petting or touching animals, and bites or scratches.
- Indirect contact: Coming into contact with areas where animals live and roam, or objects or surfaces that have been contaminated with germs. Examples include aquarium tank waters, pet habitats, chicken coops, plants, and soil, as well as pet food and water dishes.
- Vector-borne: Being bitten by a tick, or an insect like a mosquito or a flea.
- Foodborne: Each year, 1 in 6 Americans gets sick from eating contaminated food. Eating or drinking something unsafe (such as unpasteurized milk, undercooked meat or eggs, or raw fruits and vegetables that are contaminated with feces from an infected animal).

What are some ways to control the problem of mosquito-borne disease?

- disposing of solid waste properly and removing man-made habitats
- covering, emptying and cleaning of domestic water storage containers on a weekly basis
- using of personal household protection such as window screens, long-sleeved clothes, insecticide treated materials, coils and vaporizers
- improving community participation and mobilization for sustained vector control

Comprehension Questions

- From what animal did the first human contract Ebola virus in West Africa?
    - Likely from a fruit bat
- What is the correlation between poor sewage systems and the spread of Zika?
    - Open sewers are breeding grounds for the mosquitoes that spread Zika.

Discussion Questions

- Have you ever met someone who came down with a mosquito-borne or zoonotic disease? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of "spillover" diseases?
- What is the international community's responsibility in fighting newly emerging infectious diseases? What responsibility do richer countries have to assist poorer countries?
- Many experts think it is inevitable that new epidemics will emerge. What should the world do to prepare? What is the world doing already?
- If you were an official in charge of public health, how would you fight the spread of mosquito-borne or zoonotic disease?
- Was it ethical for the doctor to forcibly vaccinate people in India against smallpox?
- The film discusses the challenge of raising public understanding of epidemics. It discusses the role social media has played in spreading false rumors. How can public health officials effectively counter false information?
- The health journalist featured in the film predicts a future pandemic could cause social collapse. Is this danger exaggerated?

Zika: The Untold Story

Produced by WGBH-NOVA
Year of Release: 2016
Length: 14 minutes
English Level: Easy
Themes: vector-borne disease; Public health

Screening Details:

- The U.S. Department of State has received permission to screen this film at U.S. Embassies/Consulates and at American Spaces for calendar year 2018. Public screenings should be open to the public free of charge.
- Refer to the Pest Fest guide for instructions on how to view and download the film.

Synopsis:
In 2016, panic spread through the Americas as a once obscure virus—Zika—reached epidemic proportions. To the surprise of the medical community and the public alike, the little known virus was discovered to cause severe birth defects in children born to infected mothers. But where did this virus come from? And how did it suddenly become a problem of such devastating proportions? A year after the devastating disease exploded in the Americas, this film takes a closer look at how this virus grew to become such a monster. The film traces the disease back to its origins... back to the tropical forests of Uganda, where it was discovered during a golden age of virus discovery.

Background Information

Zika virus (From U.S. Centers for Disease Control)
Zika is spread mostly by the bite of an infected Aedes species mosquito (Ae. aegypti and Ae. albopictus). These mosquitoes bite all day. Zika can be passed from a pregnant woman to her fetus. Infection during pregnancy can cause certain birth defects. There is no vaccine or medicine for Zika.

Vector-Borne Disease (From the World Health Organization)
Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Many of these vectors are bloodsucking insects, such as mosquitos, which ingest disease-producing microorganisms during a blood meal from an infected host--human or animal--and later inject it into a new host during their subsequent blood meal.

- Vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700,000 deaths annually.
- More than 3.9 billion people in over 128 countries are at risk of contracting dengue, with 96 million cases estimated per year.
- Other diseases such as Chagas disease, leishmaniosis, and schistosomiasis affect hundreds of millions of people worldwide.

What are some ways to control the problem of mosquito-borne disease?

- disposing of solid waste properly and removing man-made habitats
- covering, emptying and cleaning of domestic water storage containers on a weekly basis
- using of personal household protection such as window screens, long-sleeved clothes, insecticide treated materials, coils and vaporizers
- improving community participation and mobilization for sustained vector control

Comprehension Questions

- How was the virus given the name "Zika"?
    - Zika, also know as Ziika, is the name of the forest in Uganda where the virus was discovered in 1947.
- Why didn't Zika become well-known until many years after it was discovered?
    - For decades, Zika was known to exist in only Africa and Southeast Asia, with just 14 documented cases. In 2007, the first major documented Zika outbreak hit Yap island in Micronesia. Other Pacific Islands began to see more cases, and in 2013, there was another outbreak in French Polynesia. The current outbreak began in Brazil in May 2015 and has since spread to several other countries.

Discussion Questions

- Have you ever met someone who came down with a vector-borne disease? What was it like for them?
- What actions can you take to reduce your/your family/your community's risk of vector-borne diseases?
- What is the international community's responsibility in fighting infectious diseases around the globe? What responsibility do richer countries have to assist poorer countries?